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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/301,989 04/29/99 LAOR

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PM82/0705

EXAMINER

KENT A FISCHMANN
HOLME ROBERTS & OWENS
1700 LINCOLN STREET
SUITE 4100
DENVER CO 80203

MUN, K

ART UNIT	PAPER NUMBER
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3641

DATE MAILED:

07/05/00

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/301,989

Applicant(s)

LAOR, HERZEL

Examiner

K. Kevin Mun

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 5-10, 13, 14, 17-47, 56 and 58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 11, 12, 15, 16, 48-55 and 57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 April 1999 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
- ☐ received.
 - ☐ received in Application No. (Series Code / Serial Number) _____.
 - ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

DETAILED ACTION

1. Claims 5-10, 13-14, 17-47, 56, and 58 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected apparatus and species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 5.

Drawings

2. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they do not include the following reference sign(s) mentioned in the description: 128. Correction is required.

Specification

4. The disclosure is objected to because of the following informalities:

- ✓ The word "of" in line 16 of page 16 appears to be mistakenly inserted.
- ✓ ", the" in line 2 of page 11 should have been ". The".
- ✓ The reference numeral "126" in line 2 of page 11 should have been "120."

Appropriate correction is required.

5. The following is a quotation of 37 CFR 1.71(a)-(c):

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(a) The specification must include a written description of the invention or discovery and of the manner and process of making and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which the invention or discovery appertains, or with which it is most nearly connected, to make and use the same.

(b) The specification must set forth the precise invention for which a patent is solicited, in such manner as to distinguish it from other inventions and from what is old. It must describe completely a specific embodiment of the process, machine, manufacture, composition of matter or improvement invented, and must explain the mode of operation or principle whenever applicable. The best mode contemplated by the inventor of carrying out his invention must be set forth.

(c) In the case of an improvement, the specification must particularly point out the part or parts of the process, machine, manufacture, or composition of matter to which the improvement relates, and the description should be confined to the specific improvement and to such parts as necessarily cooperate with it or as may be necessary to a complete understanding or description of it.

6. The specification is objected to under 37 CFR 1.71 because of the following deficiencies, failing to provide an adequate written description of the invention and to teach how to make and/or use the invention:

- There is neither adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including exact composition of the Bose-Einstein condensate, size and dimension of the reaction chamber, mass of the condensate, temperature and pressure of the reaction chamber, beam intensity, etc.
- There is neither adequate description nor enabling disclosure as to how and in what manner the actual fusion reactions take place. According to the specification, it appears that, if a laser beam with sufficient energy and high frequency is directed to the Bose-Einstein condensate, the alleged fusion reactions automatically take place by fusing among the condensate particles. However, there is no reputable evidence of record to support this allegation.

Furthermore, the alleged fusion reaction without any means of confinement effect is not believed by practitioners in the art to be operable as disclosed.

- There is neither adequate description nor enabling disclosure as to how and in what manner the Bose-Einstein Condensate is produced (especially Bose-Einstein Condensates other than ^4_2He) and introduced into the reaction chamber. In case the Bose-Einstein Condensate is produced within the reaction chamber, the disclosure is insufficient and not enabling as to how and in what manner the condensate is produced. As to the process of introducing the condensate into the chamber (e.g. into plastic receptacle), the disclosure is insufficient and not clear to determine whether the process is continuous or batch mode, as this information being essential and critical to the practice of the invention.
- There is neither adequate description nor enabling disclosure as to what material or medium occupies the reaction chamber. There must be a medium in the reaction chamber to absorb the heat generated from the fusion.
- There is neither adequate description nor enabling disclosure as to how and in what manner the harnessing device can sufficiently remove such intense heat generated by the alleged fusion reaction. It is to be noted that extracting energy produced by fusion reaction in a controlled manner is one of the most difficult tasks in fusion research and development. Neither specific methods nor structural details of the harnessing devices are sufficiently disclosed.

- There is neither adequate description nor enabling disclosure as to how and in what manner the plastic receptacle maintains its structural integrity without melting from the intense heat generated by the alleged fusion reaction.

Claim Objections

7. The claims are objected to because they include reference characters which are not enclosed within parentheses. See Claim 53.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-4, 11-12, 15-16, 48-55, and 57 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, for the reasons set forth above in Section 6 of this Office Action and reasons set forth more fully below.

There is no reputable evidence of record to support any allegations or claims that the invention involves nuclear fusion, nor that any allegations or claims of "energy" due to nuclear reactions are valid and reproducible, nor that the invention as disclosed is capable of operating as indicated and capable of providing a useful output.

Applicant's specification is replete with assumptions and speculations as to how and in what manner the applicant can induce nuclear fusion by forming a cold plasma (e.g. Bose-Einstein condensate). See pages 7+. However, applicant has presented no reputable factual evidence to support his assumptions and speculations. The disclosure is considered insufficient without a reputable appraisal on the degree of validity of the various assumptions and speculations as well as a factual basis for each of assumptions and speculations.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 3-4 and 51-52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 3, the phrase "a multiplicity of bosons" renders the claim indefinite because it is unclear whether the phrase is to indicate multiple boson particles (e.g. more than one ${}^4_2\text{He}$ particles) or to indicate a mixture of different boson particles (e.g. mixture of ${}^4_2\text{He}$ and other boson particles).

The term "sufficient" in claims 51 and 52 is a relative term which renders the claim indefinite. The term "sufficient" is not defined by the claim, the specification does

not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 101

12. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

13. Claims 1-4, 11-12, 15-16, 48-55, and 57 are rejected under 35 U.S.C. 101

because the disclosed invention is inoperative and therefore lacks utility.

The reasons for that the invention as disclosed is inoperative are the same as the reasons set forth above in Sections 6 and 9 of this Office Action and are accordingly incorporated herein.

There is no convincing evidence that the phenomena attributed to "Bose-Einstein condensate fusion" would produce useful sources of energy. Note in this respect, website <http://www.cs.cmu.edu/~dst/ATG/index.html>, more specifically page 6, alleges that the work by American Technologies Group (ATEG) (who has attempted but failed to patent BEC fusion on several occasions) on BASER was a scam (see also Declaration of Dr. Shui-Yin Lo to USPTO dated 1/21/1998). Since there is no reputable evidence of record to indicate that the invention has been reduced to the point of providing in current available form, e.g. an operative fusion system, the invention is not considered as meeting the requirements of 35 U.S.C. 101 in being "useful."

Applicant at best has set forth what may be considered as a concept or an object of scientific research. However, it has been held that such does not present a utility within the meaning of 35 U.S.C. 101. See Brenner v. Manson, 148 USPQ 689.

Additionally, it is well established that where, as here, the utility of the claimed invention is based upon allegations that border on the incredible or allegations that would not be readily accepted by a substantial portion of the scientific community, sufficient substantiating evidence of operability must be submitted by the applicant. Note In re Houghton, 167 USPQ 687 (CCPA 1970); In re Ferens, 163 USPQ 609 (CCPA 1969); Puharich v. Brenner, 162 USPQ 136 (CA DC 1969); In re Pottier, 153 USPQ 407 (CCPA 1967); In re Ruskin, 148 USPQ 221 (CCPA 1966); In re Citron, 139 USPQ 516 (CCPA 1963); and In re Novak, 134 USPQ 335 (CCPA 1962).

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1-4, 11 are rejected under 35 U.S.C. 102(b) as being anticipated by any of Lo (US 4875213), Lo (WO 93/11543), and Lo (WO 93/11543).

Each of Lo (US 4875213), Lo (WO 93/11543), and Lo (WO 93/11543) discloses a method of forming coherent bosons to generate nuclear fusion reaction, comprising steps of: forming and providing a Bose-Einstein condensate of ^4He atoms into a

chamber; applying a compressive high-energy laser beam to the Bose-Einstein condensate, wherein a resulting reaction provides energy that can be used for propulsion or otherwise harnessed.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1-4, 11-12, 15-16, 48-55, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of Lo (US 4875213), Lo (WO 93/11543), or Lo (WO 93/11543).

Each of Lo (US 4875213), Lo (WO 93/11543), and Lo (WO 93/11543) discloses applicant's basic inventive concept, method of generating fusion energy by directing laser beam to a Bose-Einstein condensate, substantially as claimed with exceptions of specifically disclosing: the high energy laser beam being femto-second laser beam (as to Claim 12); directing laser beams from at least two different direction (as to Claim 15); harnessing the fusion energy (as to Claims 48, 53, 55 and 57).

However, it is conventional in the fusion reactor art (or even in fission reaction art) and hence obvious to harness the energy generated from fusion reaction by various conversion methods (i.e. directly converting a reaction product stream from a reaction chamber into power) for various purposes (i.e. propulsion, power generation, heating,

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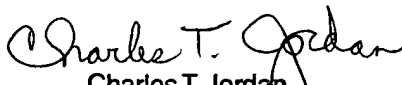
etc.). As to Claim 12, it is conventional in the art and hence obvious to utilize femto-second laser beam or even shorter laser beams depending on the plasma stability period in order to preclude the growth of plasma instabilities. It is to be noted that each of Lo's discloses the laser beams being pulsed laser without specifically disclosing the duration of a pulse. However, any practitioners in the art would know that the duration of the pulse would be 10^{-14} or less. As to Claim 15, it is conventional in the art and hence obvious to utilize multiple laser beams depending on the energy (e.g. intensity) of the available laser beams in order to provide sufficiently high energy laser beams.

It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize such conventionally well-known art expedients in the primary references in order to obtain the advantages thereof.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Kevin Mun whose telephone number is 703-305-1839. The examiner can normally be reached on Tue-Fri 8:00-5:30.

19. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.


Charles T. Jordan
Supervisory Patent Examiner
Group 3600